

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Currently amended) A starter mechanism adapted to be connected to [[the]] a crankshaft of an internal combustion engine, the engine having a compression stroke that provides an impeding compression force stronger than a force initially supplied by the starter mechanism, the starter mechanism configured to accumulate sufficient energy to start the engine, the starter mechanism comprising:

a starter housing;

a first spring operatively connected to the starter housing;

a pulley operatively connected to the first spring, said pulley configured to be rotated within said housing by means of a pull rope;

a second spring operatively connected to the pulley;

an arbor operatively connected to the second spring, wherein rotation of the pulley is transmitted to the arbor by the second spring, the pulley being able to rotate more than one complete revolution with respect to the arbor so as to accumulate energy in the second spring; and

an ~~at least first~~ engagement [[means]] mechanism operatively connected to the arbor and adapted to be operatively attached to an associated engine crankshaft;

wherein when the pulley is rotated to start the engine, the compression force of the engine initially impedes rotation of the arbor causing the pulley to rotate more than one complete revolution with respect to the arbor after the crankshaft reaches the compression stroke, said rotation causing the second spring to wind and accumulate sufficient energy therein such that when the second spring overcomes the compression force, the arbor rotates multiple times to start the engine.

2. (Original) The starter mechanism of claim 1, wherein the arbor further consists of a first and second hub located on opposite sides of the arbor.

3. (Original) The starter mechanism of claim 2 wherein the arbor further comprises at least a first hole located adjacent to the second hub and wherein an arcuate portion of the second hub partially extends around the at least first hole.

4. (Currently amended) The starter mechanism of claim 3, wherein the engagement ~~[[means]]~~ mechanism further comprises a first end, a second end, and a body.

5. (Currently amended) The starter mechanism of claim 4, wherein the first end of the engagement ~~[[means]]~~ mechanism extends beyond the body and is received by the at least first hole and wherein the first end pivots about its axis.

6. (Currently amended) The starter mechanism of claim 5, wherein engagement ~~[[means]]~~ mechanism further comprises a post extending above the body.

7. (Currently amended) The starter mechanism of claim 6 further comprising:
a retaining means operatively attached to the housing ~~wherein the retaining means further comprises apertures.~~

8. (Currently amended) The starter mechanism of claim 7, wherein the ~~aperture engages the post~~ retaining means comprises two slotted apertures and a center hole, wherein the two slotted apertures are oriented to guide pivoting motion of the engagement mechanism, and further comprising a screw inserted through the center hole and into a post extending from the housing, the retaining means being attached to the housing by said screw.

9. (Currently amended) The starter mechanism of claim 8, wherein the at least first engagement ~~[[means]]~~ mechanism consists of a starter dog, wherein the starter dog is adapted to be operatively attached to an associated engine flywheel.

10. (Currently amended) A starter mechanism adapted to be connected to an associated internal combustion engine, comprising:

a starter housing having a post that extends outwardly;

an arbor having a first hub, a second hub, and at least one hole adjacent to the first hub, wherein an arcuate portion of the second hub partially extends around the at least first hole;

a pulley having a first sleeve and a chamber;

a first spring having first and second ends, the first end of the first sleeve being operatively connected to the starter housing, the second end of the first spring being operatively connected to the first sleeve of the pulley;

a second spring having first and second ends, the first end of the second spring being operatively connected to an outer portion of the chamber of the pulley, the second end of the second spring being operatively connected to the first hub of the arbor wherein rotation of the pulley is transmitted to the arbor by the second spring, the pulley being able to rotate more than one complete revolution with respect to the arbor so as to accumulate energy in the second spring;

[[an]] at least one engagement means having a first end, a second end, [[and]] a body and a post extending above the body, the first end being operatively connected to the arbor, and wherein the second end of the engagement means is adapted to receive drive an associated engine flywheel or crankshaft when the engagement means is pivoted to a flywheel engaging position; and,

a retaining means operatively attached to the housing, wherein the retaining means further comprises [[s]] at least one slotted aperture and a center hole, wherein the at least one slotted aperture is oriented to guide pivoting motion of the at least one engagement means, and further comprising a screw inserted through the center hole and into the post extending from the housing, the retaining means being attached to the housing by said screw.

11. (Original) The starter mechanism of claim 10, wherein the engagement means further comprises a post extending above the body.

12. (Original) The starter mechanism of claim 11, wherein the post engages the aperture.

13. (Cancelled)

14. (Currently amended) A ~~[[The]]~~ method of ~~claim 13 further~~ starting an engine, comprising the steps of:

providing an engine, a starter mechanism having a starter housing, a first spring, a pulley, a second spring, an arbor, an at least first engagement means, a retaining means, and a handle operatively connected to a pull rope, wherein the pulley is operatively connected to rotate the arbor only through the second spring;

providing the retaining means with an at least first aperture having a first end and a second end[[.]];

providing the at least first engagement means with a post extending above the engagement means and the post being received by the aperture; [[and,]]

grasping the handle;

pulling the rope in a direction extending in an outward direction from the housing;

winding the second spring to facilitate in starting the engine; wherein the step of winding the second spring to facilitate in starting the engine further comprises the [[step]] steps of[[.]]:

rotating the pulley and the arbor to permit the post to move from the first end of the aperture to the second end of the aperture thereby pivoting the engagement means from a first position to a second position to permit the engagement means to engage the flywheel thereby turning the crankshaft and rotating the crankshaft to the compression stroke of the engine whereat the compression force causes the arbor to stop rotating;

continuing to rotate the pulley relative the arbor to store sufficient energy in the second spring to cause the arbor to rotate multiple times after the energy in the second spring overcomes the compression force and begins to rotate the arbor;
and

releasing the handle to allow the rope to retreat into the housing.

15. (Original) The method of claim 14 further comprising the steps of:

wherein the step of moving the post from the first end of the aperture to the second end of the aperture further comprises:

pivoting the engagement means from a first position to a second position to permit the engagement means to engage the flywheel thereby turning the crankshaft and starting the engine.

16. (New) A starter mechanism adapted to be connected to the shaft of an internal combustion engine comprising:

a starter housing;

a first spring operatively connected to the starter housing;

a pulley operatively connected to the first spring, said pulley configured to be rotated within said housing by means of a pull rope;

a second spring operatively connected to the pulley;

an arbor operatively connected to the second spring, wherein the arbor comprises a first and second hub located on opposite sides of the arbor and at least a first hole located adjacent to the second hub and wherein an arcuate portion of the second hub partially extends around the at least first hole; and

an at least first engagement mechanism operatively connected to the arbor and adapted to be operatively attached to an associated engine crankshaft, wherein the engagement means is at least partially received by the at least first hole.

17. (New) The starter mechanism of claim 16 further comprising a retaining mechanism, said retaining mechanism having two slotted apertures and a center hole, wherein the two slotted apertures are oriented to guide pivoting motion of the engagement mechanism, and further comprising a screw inserted through the center hole and into a post extending from the housing, the retaining means being attached to the housing by said screw.

18. (New) The starter mechanism of claim 16 wherein rotation of the pulley is transmitted to the arbor by the second spring, the pulley being able to rotate more than one complete revolution with respect to the arbor so as to accumulate energy in the second spring, wherein when the pulley is rotated to start the engine, the compression force of the engine initially impedes rotation of the arbor causing the pulley to rotate more than one complete revolution with respect to the arbor after the crankshaft reaches the compression stroke, said rotation causing the second spring to wind and accumulate sufficient energy therein to start said engine such that when the second spring overcomes the compression force, the arbor rotates multiple times to start the engine.

19. (New) The starter mechanism of claim 10 wherein when the pulley is rotated to start the engine, the compression force of the engine initially impedes rotation of the arbor causing the pulley to rotate more than one complete revolution with respect to the arbor after the crankshaft reaches the compression stroke, said rotation causing the second spring to wind and accumulate sufficient energy therein to start said engine such that when the second spring overcomes the compression force, the arbor rotates multiple times to start the engine.

20. (New) The starter mechanism of claim 1 wherein the arbor comprises a first hub that is operatively connected to the second spring, and wherein the engagement mechanism comprises a second hub on the arbor comprising at least a first cog adapted to operatively engage an associated engine crankshaft or flywheel of the internal combustion engine.

AMENDMENTS TO THE DRAWINGS

The attached sheets of replacement drawings replace Figures 3, 13 and 15 of the application. The attached replacement Figure 3 adds previously omitted elements 16, 20, 48 and 49 that are clearly shown in the exploded view of Fig. 4. In replacement Figure 13, the receiving means 284 and the lead line pointing thereto have been amended to match the informal drawing submitted with the application. In replacement Figure 15, a lead line to the starter dog 270 has been added and the starter dogs are correctly shown in the second position 288 to match the informal drawing submitted with the application and the description on page 11, lines 29-30.